UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,264	03/10/2004	Matthias H. Regelsberger	H10210/JDP	5357

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EXAMINER
PHAM, HAI CHI

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	10/797,264	REGELSBERGER ET AL.
Office Action Summary	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>03 July 2006</u>.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,6 and 26-39* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1, 6, 26-39* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

FINAL REJECTION

Claim Objections

1.   Claims 1 and 6 are objected to because of the following informalities:

Claim 1:

- Line 16, "as a function of applied voltage" should read --as a function of applied

  voltage or supplied current--, so as to be in line with the dependent claims 26, 27

  and 32, where the alternative use of the "supplied current" is introduced.

Claim 6:

- Line 16, "as a function of applied voltage" should read --as a function of applied

  voltage or supplied current--, so as to be in line with the dependent claims 33, 34

  and 39, where the alternative use of the "supplied current" is introduced;

- Line 21, "altering" should read --to alter--.

  Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 6, 26-27, 29-34 and 36-39 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Bollansee et al. (US 5,640,190) in view of Uebbing et al. (US

4,982,203).

        Bollansee et al. discloses an LED printer and a method for controlling the

unevenness of the light emission, the printer comprising a printhead (130, Fig. 1) having

a plurality of radiation emitting recording elements (LED array) configured to record

image data on a recording medium (photosensitive drum 26), and a correction device

configured to measure output emission characteristics of recording elements

(measuring the average energy output of each of the subsets of recording sources or

LEDs, measuring the energy output of each individual LED, or both) (col. 4, lines 50-

64), calculate an emission correction for each of a plurality of subsets of the recording

elements (calculating the correction factor K_i characteristics to the LED's strength) (col.

10, line 3 to col. 11, line 4), each emission correction being calculated based at least

upon factors pertaining to (a) a radiation emission from the recording element subset

associated with the emission correction being calculated (the correction being based on

the measurement of the average energy output of each of the subsets of the LEDs while

allowing the weakest LED in the subset to be corrected) (col. 10, line 54 to col. 11, line

4), and (b) an average radiation emission from at least a plurality of subsets of the

recording elements (measuring the average energy output to include the 116 subsets of

the LEDs) (col. 12, line 34 to col. 13, line 8), and altering the radiation emission of the

subsets of recording elements as a function of applied voltage in accordance with the

emission corrections (col. 5, lines 17-23).

Bollansee et al. fails to teach each emission correction facilitating correction of the radiation emission from its associated recording element subset as a function of applied voltage (claims 1 and 6), the factors pertaining to the above-mentioned (a) and (b) including linear functions of light output versus applied voltage or supplied current (claims 26 and 33), non-linear functions of light output versus applied voltage or supplied current 9claims 27 and 34).

Uebbing et al. discloses an apparatus and a method for providing correction for amount degradation in the light output of the light source in an electrophotographic recording device, wherein to obtain the amount of compensation for degradation in light output, the average amount of light output for the printhead is measured at various temperatures and as a function of the supplied current, the supplied current being provided by varying the system reference voltage V_R (col. 2, line 51 to col. 3, line 2) (col. 6, lines 24-65). Uebbing et al. further teaches the amount of compensation for the light output of the light recording elements including a factor as a linear function of light output versus supplied current (i.e., factor x. I, where I is the supplied current and x the current non-linearity coefficient) (see Equation (4) at col. 6, line 34). Uebbing et al. further teachs that alternatively, the amount of compensation for the light output of the light recording elements including a factor as a non-linear function of light output versus supplied current (using partial derivatives as in Equation (6) at col. 7, line 5) (col. 6, line 66 to col. 7, line 15).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Bollansee et al. by providing the

amount of compensation for the light output of the light recording elements as a function of the applied voltage or supplied current as taught by Uebbing et al. The motivation for doing so would have been to accurately correct the light output of the light recording elements through a range of the supplied current such that the uniform light output of the printhead is more suitable for precision gray scale printing as suggested by Uebbing et al.

Bollansee et al. also teaches:

- the calculating step involves using difference data describing a difference between a factor pertaining to (a) and a factor pertaining to (b) (col. 4, lines 55-64),

- At least one of the LED subsets includes only a single LED (col. 4, lines 52-55),

- At least one of the LED subsets includes only a plurality of LEDs (116 subsets of 64 LEDs each),

- the at least one LED subset including the plurality of LEDS includes a plurality of LEDS having substantially similar light-output-versus-applied-voltage or -supplied-current (the subsets of LEDs are grouped by classes having about the same correction factor) (col. 11, lines 13-30).

4.   Claims 28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bollansee et al. in view of Uebbing et al., as applied to claims 1, 6, 27, 34 above, and further in view of Kawabe et al. (U.S. 5,812,176).

Bollansee et al., as modified by Uebbing et al., discloses all the basic limitations of the claimed invention except for the factors pertaining to (a) and (b) including quadratic functions.

Kawabe et al. discloses an image forming apparatus and a correction method for compensating the fluctuation of the exposure amount of each of the recording element, by measuring three times the brightness E_i of each of the recording element, calculating the averaged value E_o of all brightness values to be used as the reference brightness E_o and forming the ratio of the measured brightness E_i and the reference brightness E_i, to be used as the compensation data C_i, to be used to alter the output emission of the target recording element to compensate for the fluctuation of the brightness of target recording element (col. 25, line 50 to col. 26, line 20). Kawabe et al. further teaches the brightness of one of the recording element can be calculated by using a quadratic function corresponding to characteristics of the used array of the LEDs (col. 24, line 47-55) (col. 25, lines 39-49).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Bollansee et al. by using the quadratic function corresponding to characteristics of the used array of the LEDs to derive the light amount of the target LED as taught by Kawabe et al. since Kawabe et al. teaches this to be known in the art to use the quadratic function to obtain the same resulting amount of light for the individual light recording element.

Conclusion

5.   Applicant's amendment, which changed the scope of the base claims,

necessitated the new grounds of rejection presented in this Office action. Accordingly,

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the

extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hai C. Pham whose telephone number is (571) 272-

2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HAI PHAM
PRIMARY EXAMINER

September 12, 2006